REMARKS

This communication is responsive to the Office Action dated November 4, 2008. In the Office Action, the Examiner reopened prosecution in view of Applicant's arguments set forth in Applicant's Appeal Brief filed August 04, 2008. As set forth in detail below, Applicant submits that the newly cited art (Dowling) suffers from the same deficiencies of the previously cited art. Applicant has made no claim amendments. Claims 1-37 and 39-52 are pending.

Claim Rejection Under 35 U.S.C. § 103

1. Claims 17-19, 33 and 34

In the Office Action, the Examiner rejected claims 17 – 19, 33 and 34 under 35 U.S.C. 103(a) as being unpatentable over Goringe et al (U.S. Patent Number 7,069,343) in view of Dowling (U.S. Patent Number 6,636,499). Applicant respectfully traverses the rejection. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Claims 17, 33 and 34

Claim 17 recites a network device comprising a first data structure to store routing information that describes a topology of a network and a second data structure to store performance community information that identifies one or more network devices that are capable of responding to performance probes used to monitor the network. Claim 17 requires a routing communication manager that receives a routing communication that identifies at least one route within a network and an indicator that indicates that a network device that sent the routing communication is capable of responding to performance probes used to monitor the network. Claim 17 further requires that the routing communication manager updates the routing information of the first data structure to include the route identified in the routing communication and updates the performance community information of the second data structure to include the network device that sent the routing communication as one of the network devices capable of responding to performance probes.

As explained in Applicant's specification at page 6, paragraph [0024], Applicant has invented a technique for establishing a performance community, e.g., a set of network devices

that support performance monitoring of network, *using one or more routing protocols in a modified fashion.* Paragraph [0024] explains that network devices utilize one or more routing protocols, e.g., Border Gateway Protocol (BGP), in a modified fashion to indicate their support for self-configured performance monitoring. For example, as specified in claim 17, a routing communication identifies at least one route within a network and additionally includes an indicator that indicates that the network device that sent the routing communication is capable of responding to performance probes used to monitor the network. Conventional routing protocols do not include any indicator that indicates support for performance monitoring, e.g., the capability to respond to performance probes.

Applicant's claimed invention provides a number of advantages. For example, each of the network devices may identify other network devices within the network that are capable of responding to performance probes and dynamically establish a performance community without the need for a network administrator to manually configure each of the network devices. As a result, the techniques may avoid significant administrative resources that otherwise would be necessary to manually configure the network devices to establish the performance community for collecting the performance characteristics of the network.

Goringe fails to disclose using one or more routing protocols in a modified fashion as set forth in claim 17. As described in detail in Applicant's previous Amendment dated November 27, 2007, Goringe describes a system for discovering a topology of a network.[1] In particular, Goringe uses multiple discovery techniques to discover the network topology.[2] The system described in Goringe performs a first discovery phase to download selected Management Information Base (MIB) information, e.g., **<u>using the Simple Network Management Protocol (SNMP)</u>**.[3] The system of Goringe analyzes the MIB information downloaded via **SNMP** to generate a portion of the network topology.[4] The MIB discovery phase is protocol independent, i.e., will discover the IP network topology regardless of what routing protocols the devices within the network utilize.[5] However, the first discovery phase is performed in a hop-by-hop manner, i.e., the discovery agent must visit each of the routers of the network.[6] The first

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[1] Goringe, Abstract.
[2] Goringe, column 3, lines 1-7.
[3] Goringe, column 3, lines 12-25.
[4] Goringe, column 5, lines 52-56.
[5] Goringe, column 3, lines 19-20, lines 55-63.
[6] Goringe, column 3, lines 20-22.

discovery phase may, in some instances, be unable to ascertain Layer 3 network topology when the routers are unreachable via **SNMP**, e.g., due to a down state of the contacted interface or a non-existent SNMP agent in the router.[7] To ensure that the system obtains the network topology of the entire network, and not just a portion of the network, the system described in Goringe performs a second discovery phase to obtain network topology information for a second portion of the network. In particular, the second discovery phase uses a routing protocol agent, e.g., an OSPF agent, **<u>in a conventional, unmodified manner</u>** to obtain the second portion of the network topology.[8] The routing protocol (e.g., OSPF) discovery phase allows discovery of devices in the network that are unreachable via SNMP.[9] The OSPF discovery phase alone, however, would be unable to discover routers that utilize protocols other than OSPF.[10] Thus, the combination of a protocol-independent discovery phase (e.g., SNMP/MIB) with a protocol-dependent discovery phase (e.g., OSPF) enables the system to more accurately obtain the topology of the entire network (i.e., all or near all the devices on the network).

The network topology discovery techniques of Goringe, which include a discovery phase that uses routing communications to obtain topology information, does not use routing communications in a modified fashion to identify which of the network devices within the topology are capable of responding to performance probes, as literally required by Applicant's independent claim 17. To the contrary, the network topology discovery system of Goringe uses routing protocols in their **<u>conventional, unmodified manner</u>** to collect routing information that identifies routes (or links) in the network to define a topology of network devices that communicate using the routing protocol (e.g., OSPF).[11]

In reopening prosecution, the Examiner correctly recognized that Goringe's conventional use of routing protocols and its use of SNMP to discover network topology fails to teach or suggest a routing communication manager that receives a routing communication that identifies at least one route within a network and an indicator that indicates that a network device that sent the routing communication is capable of responding to performance probes used to monitor the network, as required by claim 1.[12] In other words, the Examiner recognized that Goringe fails to

[7] Goringe, column 2, lines 46-49.
[8] Goringe, column 3, lines 12-19 and lines 33-41.
[9] Goringe, column 4, lines 8-11.
[10] Goringe, column 3, line 66 – column 4, line 1.
[11] See, e.g., Goringe, column 5, lines 17-20.
[12] Office Action, pg. 4, 1st full paragraph.

teach or suggest routers using a routing protocol in a modified fashion to indicate their support for self-configured performance monitoring.

However, in the recent Office Action, pg. 4, the Examiner asserted that Dowling provides such a teaching and that it would have been obvious to one of ordinary skill in the art to modify Goringe to incorporate the teachings of Dowling to achieve Applicant's claimed invention as recited in claim 17. Applicant respectfully disagrees and submits that Dowling offers no new teaching over Goringe and fails to overcome the deficiency of Goringe as recognized by the Examiner.

Dowling describes a group of network devices, such as Ethernet switches or routers, that use the Cisco™ Discovery Protocol (CDP) to identify devices and use SNMP to query configuration information. Dowling explains the specific requirements of CDP as follows:

> *CDP is a media-independent device discovery protocol which can be used by a network administrator to view information about other network devices directly attached to a particular network device. In addition, network management applications can retrieve the device type and SNMP-agent address of neighboring network devices.* ***This enables applications to send SNMP queries to neighboring devices.*** *CDP thus allows network management applications to discover devices that are neighbors of already known devices, such as neighbors running lower-layer, transparent protocols.*
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> *... CDP runs on all media that support the Subnetwork Access Protocol ("SNAP"), including LAN and Frame Relay. CDP runs over the data link layer only. Each network device sends periodic messages to a multicast address and listens to the periodic messages sent by others in order to learn about neighboring devices and determine when their interfaces to the media go up or down. Each device also advertises at least one address at which it can receive SNMP messages. The advertisements contain holdtime information, which indicates the period of time a receiving device should hold CDP information from a neighbor before discarding it. With CDP, network management applications can learn the device type and the SNMP agent address of neighboring devices.* ***This process enables applications to send SNMP queries to neighboring devices.***

Thus, as made apparent by the above paragraphs, Dowling teaches that switches and routers must be configured to run a particular discovery protocol (i.e., CDP) that requires the support of "SNAP." CDP enables applications collect information by sending SNMP queries to neighboring devices. Consequently, Dowling does not teach or suggest any mechanism by which a routing protocol can be modified. Thus, Dowling fails to overcome the deficiency of Goringe recognized by the Examiner. Like Goringe, Dowling requires devices to use **SNMP** for exchanging capabilities. **Dowling correctly explains that SNMP is an *application-layer***

protocol (i.e., layer 7 protocol) **designed to facilitate the exchange of management information between network devices.**[13] In contrast, routing protocols operate within the network layer (i.e., layer 3) of the OSI model and are used by routers to disseminate network topology information to other routers.[14]

To be clear, the Examiner recognized that Goringe fails to teach or suggest a routing communication manager that receives a routing communication that identifies at least one route within a network and an indicator that indicates that a network device that sent the routing communication is capable of responding to performance probes used to monitor the network, but nevertheless asserted that such features were taught by Dowling. However, contrary to the Examiner's assertion, Dowling does not teach or suggest these elements. Instead, Dowling requires the use of the Cisco Discovery Protocol which allows devices to run SNMP application and query other devices so as to learn their capabilities and ultimately form a cluster. Dowling makes clear that switches and even **routers** must use CDP and SNMP to collect configuration information. To the extent the Cisco routers in Dowling run routing protocols, Dowling expressly teaches that these Cisco routers must nevertheless run a different protocol for device discovery (CDP) and must utilize SNMP for collecting configuration information. Thus, Dowling does not teach routers using a modified routing protocol. Instead, directly contrary to Applicant's claim 17, Dowling expressly teaches that even the Cisco routers must use an additional discovery protocol (CDP) that allows SNMP to be used to collect information.

Moreover, as discussed above, Goringe already describes a system that uses **SNMP** for discovering a topology of a network.[15] Neither Goringe nor Dowling, either in combination or singularly, suggest modifying a routing protocol at all or using a routing protocol for anything but exchanging routing information in a conventional manner. As described above, Goringe describes a second discovery phase in which OSPF is used to discover the topology of the portion of the network executing OSPF. Goringe describes using the routing protocol in the conventional sense to communicate routes (or links), a router identifier (address) and other conventional routing information. That is, during the discovery of the topology of the network, the OSPF discovery agent obtains link-state information and stores it in a link-state database. The link-state database is a listing of links with each link being defined by end points (end point

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[13] Dowling, col. 8, ll. 3-40.
[14] http://en.wikipedia.org/wiki/Routing_protocol
[15] Goringe, Abstract.

routers) and a cost metric associated with the link.[16] In this manner, the link-state database stores link information that may be used by the routers to identify paths through the network (i.e., a network topology).

Neither the link-state database, nor any other database described in Goringe, stores performance community information that identifies one or more network devices that are capable of responding to performance probes used to monitor the network, as required by Applicant's claim 17. To the extent the link-state database (or other database generated during the OSPF discovery phase) maintains identities of network devices (e.g., routers), it does not identify the network devices within the network that are capable of responding to performance probes used to monitor performance of the network. Instead, the link-state database obtains identities of routers in the network that communicate using OSPF or other particular routing protocol. This is different than identifying network devices that are capable of responding to performance probes used to monitor performance of the network. As explained in Applicant's specification, to be capable of responding to performance probes the network device must be capable of generating a response to a performance probe and sending the response to the inquiring network device.[17] Goringe fails disclose using performance probes for collecting network performance statistics and therefore could not possibly contemplate identifying the particular network devices within the network that support the capability of responding to such performance probes.

Consequently, modifying Goringe in view of Dowling, as suggested by the Examiner, would at best result in a system that uses the Cisco Discovery Protocol (CDP) and SNMP to identify devices and exchange configuration information. The resultant system would not suggest a routing communication manager that receives a routing communication that identifies at least one route within a network and an indicator that indicates that a network device that sent the routing communication is capable of responding to performance probes used to monitor the network, updates the routing information of the first data structure to include the route identified in the routing communication and updates the performance community information of the second data structure to include the network device that sent the routing communication as one of the network devices capable of responding to performance probes, as required by claim 17.

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[16] Goringe, column 6, lines 28-31.
[17] See, e.g., paragraph [0037].

Specifically, Goringe in view of Dowling fails to disclose or suggest the routing communication including a specific indicator that indicates that a network device that sent the routing communication is capable of responding to *performance* probes. Instead, the routers in Goringe send routing information along with unique identifiers (addresses) associated with the routers in a conventional fashion so as to describe the paths through a network or the links in a network. Dowling requires the use of CDP and SNMP and also fails to describe using a routing protocol in a modified manner. There is no indicator within the routing communications of either cited reference that indicates that the router is capable of responding to *performance* probes. The fact that a router in Goringe and Dowling provides routing functionality (referred to as "monitoring capability") is irrelevant to the ability to respond to *performance probes*, as recited in claim 17.

For at least these reasons, Goringe in view of Dowling fails to disclose each and every limitation set forth in claims 17, 33 and 34. Therefore, the Office Action has failed to establish a prima facie case for anticipation of Applicants' claims under 35 U.S.C. § 102(e). Applicant respectfully requests withdrawal of this rejection.

Claim 18

Applicant argues claim 18 separately. Claim 18 requires that the routing communication manager of the network device of claim 17 generate an outbound <u>routing communication</u> in accordance with the routing protocol and send the outbound routing communication to at least one of the one or more network devices identified in the second data structure via a routing communication protocol. Claim 18 further requires that the outbound <u>routing communication identifies the network device as capable of responding to performance probes</u>.

With respect to claim 18, the Examiner cites Dowling at col. 8, ll. 3-24 and Goringe at FIG. 23 and col. 3, ll. 19 - col. 4, ll. 17. Applicant respectfully disagrees that the features of claim 18 are taught by Dowling and Goringe.

For example, Dowling at col. 8, ll. 3-24 of Dowling, as cited by the Examiner, describes use of **<u>Simple Network Management Protocol (SNMP)</u>** to manage a network device. SNMP is not a routing protocol as asserted by the Examiner, but instead, as correctly described by Downlings, is an *application-layer* (i.e., <u>layer 7</u>) network management application used to access

and configure network devices.[18] In contrast, routing protocols operate within the network layer (i.e., layer 3) of the OSI model and are used by routers to disseminate network topology information to other routers.[19] Examples of routing protocols include Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Intermediate System – Intermediate System (ISIS), and Routing Information Protocol (RIP), as recited in claim 16. Consequently, the Examiner's citation to Dowling's use of SNMP to for management and configuration of a network device fails to teach or suggest use of a routing protocol at all, let alone generation of an outbound routing communication in accordance with the routing protocol, where the outbound routing communication identifies the network device as capable of responding to performance probes.

Similarly, Goringe fails to provide any such teaching. As described above with respect to Applicant's claim 17, Goringe describes generating and sending routing communications that include routing information, such as link-state information. However, the routing communications generated and sent in Goringe do not identify, directly or indirectly, that the network device is capable of responding to performance probes. Not every router that communicates using OSPF or other routing protocol is capable of responding to performance probes. To be capable of responding to performance probes, the router may need to execute a software process that is capable of managing performance monitoring sessions, e.g., capable of generating responses to performance probes and sending the responses to other network devices within the performance community. The routing communications fail to indicate whether the network device that generated and sent the routing communication is capable of responding to performance probes. Instead, the routing communication simply identifies the router that sent the routing communication and link-state information.

Furthermore, like Dowling, Goringe also relies on the use of **SNMP.**[20] Goringe in view of Dowling fails to provide any teaching or suggestion that an output routing communication in accordance with a routing protocol would somehow identify the network device as capable of responding to performance probes, as required by claim 18. Consequently, Goringe in view of Dowling fails to teach or suggest each and every feature of Applicant's claim 18.

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[18] Dowling, col. 8, ll. 3-40.
[19] http://en.wikipedia.org/wiki/Routing_protocol.
[20] Goringe, column 3, lines 12-25.

Claim 19

Applicant argues claim 19 separately. Claim 19 further requires that the outbound **routing communication** generated by the network device of claim 18 include an identifier associated with the network device and an indicator that indicates the network device is capable of responding to performance probes. Thus, Applicant's dependent claim 19 requires that the outbound routing communication include two identifiers: (1) the ***identifier*** associated with the network device, e.g., the unique identifier of the router, **and** (2) the ***indicator*** that indicates the network device is capable of responding to performance probes.

In the Office Action, the Examiner again cited col. 8, ll. 3-24 and Goringe at FIG. 23 and col. 3, ll. 19 - col. 4, ll. 17. As explained above, Dowling at col. 8, ll. 3-24 of Dowling, as cited by the Examiner, describes use of **Simple Network Management Protocol (SNMP)** as an application-layer network management application to manage a network device and in no way refers to use of routing protocols at all, let alone as specified in claim 19. The routing communications in Goringe include only a single identifier associated with the router (e.g., the IP address of that router) that sent the communication. None of the other information within the routing communication, e.g., the link-state information, acts as an indicator that indicates, directly or indirectly, that the router is capable of responding to performance probes. Therefore, Goringe fails to disclose each and every feature of Applicant's claim 19.

2. Claims 1–16, 20–32, 35–37 and 39–52

In the Office Action, the Examiner rejected claims 1–16, 20–32, 35–37 and 39–52 under 35 U.S.C. 103(a) as being unpatentable over Goringe et al (U.S. Patent Number 7,069,343) in view of Beigi et al. (U. S. Patent Number 6,363,056) further in view of Dowling (U.S. Patent Number 6,636,499).

Claim 1, 5-7, 9, 11, 14-16, 20-22, 24, 26, 29-31, 33, 34, 46, 48, 49, and 51

Applicant argues claims 1, 5-7, 9, 11, 14-16, 20-22, 24, 26, 29-31, 33, 34, 46, 48, 49, and 51 as a group. Applicant directs the Examiner to independent claim 1 as the claim representative of the group.

Claim 1 recites a method comprising receiving a routing communication in accordance with a routing protocol. Claim 1 requires that the routing communication include an identifier associated with a network device that sent the routing communication and an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes used to monitor performance of a network. Claim 1 also recites sending a performance probe to the network device identified by the identifier to collect network performance statistics.

Applicant's claim 1 literally requires that the received routing communication includes both (1) an identifier associated with a network device that sent the routing communication **and** (2) an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes. As described above with respect to Applicant's claims 17 and 19, Goringe in view of Dowling fails to teach or suggest such features.

To the contrary, Dowling teaches that switches and routers must be configured to run a particular discovery protocol (i.e., CDP) that requires the support of "SNAP" and enables applications collect information using a layer seven device management application, i.e., SNMP. Further, the conventional routing communications in Goringe include routing information (e.g., link-state information, interface information and the like) and an IP address associated with the router that sent the communication. Thus, the routing communications received by the system in Goringe only include the identifier associated with the network device. None of the routing information included within the routing communication, e.g., the link-state information or interface information, functions as an indicator that indicates the network device is capable of responding to performance probes. Instead, the routing information included within the received routing communications of Goringe is nothing more than conventional routing information obtained via the routing protocol.

In fact, Goringe fails to teach or suggest using performance probes for collecting network performance statistics, as acknowledged by the Examiner in the Final Office Action, and therefore could not possibly contemplate (or have a reason to contemplate) identifying the particular network devices within the network that support the capability of responding to such performance probes. Instead, Goringe identifies network devices within the network that execute the OSPF routing protocol to obtain a portion of the topology of the network.

Moreover, modifying Goringe in view of Beigi fails to arrive at the Applicant's invention as claimed in claim 1. Beigi describes a network performance monitoring technique in which probe packets are sent from an ingress router to an egress router.[21] The Beigi system generates the probe packets by copying every N^{th} packet being sent by the ingress router and modifying the copy of the N^{th} packet to generate the probe packet.[22] Beigi fails to describe any mechanism for determining which of the network devices support performance monitoring, and therefore clearly fails to overcome the shortcomings of Goringe.

Claim 2

Applicant argues claim 2 separately. Claim 2 further requires receiving a plurality of *routing* communications that each identifies respective network devices that are capable of responding to performance probes and further comprising dynamically generating data to identify the network devices that are capable of responding to performance probes in response to the *routing* communications.

As described above with respect to claim 1, on which claim 2 is dependent, Goringe in view of Dowling fails to teach or suggest that the routing communications fail to identify respective network devices that are capable of responding to performance probes. To the contrary, Dowling and Goringe both rely on SNMP, and the conventional routing communications in Goringe include routing information (e.g., link-state information, interface information and the like) and an identifier associated with the router. The identifier associated with the router does not, however, identify the router as capable of responding to performance probes.

Moreover, any data structure generated by the system in Goringe using the information contained in the routing communications does not identify the network devices that are capable of responding to performance probes. Instead, data structures generated using the information contained in the routing communications describe a topology of the network. The Beigi reference provides no teachings to overcome these deficiencies of Goringe.

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[21] Beigi, Abstract.
[22] Id.

Claim 3

Applicant argues claim 3 separately. In addition to the requirements of claim 1 on which claim 3 relies, claim 3 further requires that the routing communication includes routing information describing a topology of the network. As such, claim 3 requires that the routing communication include (1) an identifier associated with a network device that sent the routing communication (2) an indicator that indicates the network device that sent the routing communication is capable of responding to performance probes and (3) routing information describing a topology of the network.

As described above with respect to Applicant's claim 1, both Goringe and Dowling rely on SNMP. Further, Goringe describes the routing communications as including routing information (e.g., link-state information, interface information and the like) and an identifier associated with the router that sent the communication. Thus, the routing communications received by the system in Goringe do not include an indicator that indicates the network device is capable of responding to performance probes. Instead, the routing information included within the received routing communications of Goringe is nothing more than conventional routing information obtained via the routing protocol. The Beigi reference provides no teachings to overcome these deficiencies of Goringe.

Claim 4 and 47

Applicant argues claims 4 and 47 as a group. Claim 4 includes all the requirements of base claim 1, but further recites generating an outbound routing communication in accordance with the routing protocol and sending the outbound routing communication to the network device associated with the identifier via the routing protocol. Claim 4 requires that the outbound routing communication identifies at least the sending network device as a supporter of performance monitoring.

In the Office Action, the Examiner cited Goringe at col. 3, ln. 19 – col. 4, ln. 17, which describes use of the OSPF routing protocol and SNMP. Applicant's dependent claim 19 requires that the outbound routing communication identifies that the network device as a supporter of *performance* monitoring. The OSPF routing communications in Goringe include no such identifier. Any identifier of the router issuing the OSPF communication does not, however, identify the network device as a supporter of performance monitoring either directly or

indirectly. Moreover, none of the other information within the routing communication, e.g., the link-state information, identifies the network device as a supporter of performance monitoring either directly or indirectly.

Claim 8 and 23

Applicant argues claims 8 and 23 as a group. Applicant directs the Examiner to independent claim 8 as the claim representative of the group.

Claim 8, which includes all the limitations of claim 6 and claim 1, further requires sending a plurality of performance probes that each is associated with the same quality of service level. Beigi fails to teach or suggest sending a plurality of performance that each is associated with the same quality of service level. In fact, Beigi does not mention the quality of service level associated with the performance packets at all.

Claim 10 and 25

Applicant argues claims 10 and 25 as a group. Applicant directs the Examiner to independent claim 10 as the claim representative of the group.

Claim 10, which includes all the limitations of claim 6 and claim 1, further requires sending a first performance probe having a first quality of service level to the network device and sending a second performance probe having a second quality of service level to the network device. As described above with respect to Applicant's claim 8, Beigi fails to teach or suggest sending a plurality of performance that each is associated with the same quality of service level. In fact, Beigi does not mention the quality of service level associated with the performance packets at all.

Claim 12, 13, 27, 28, 35-37, 39, 40 and 50

Applicant argues claims 12, 13, 27, 28, 35-37, 39, 40 and 50 as a group. Applicant directs the Examiner to independent claim 35 as the claim representative of the group.

Claim 35 is directed to a system that comprises at least one network device that receives routing communications in accordance with a routing protocol. Claim 35 requires that at least a portion of the routing communications include identifiers associated with network devices that sent the routing communications and indicators that indicate that the network device associated

with the indicators are capable of responding to performance probes used to monitor performance of a network. Claim 35 additionally requires that the network device sends performance probes to the network devices associated with the identifiers to collect network performance information.

The system of Applicant's claim 35 also includes a statistical computing device that aggregates performance information from the network devices and computes collective network performance information for the network based on the aggregated performance information.

In the rejection of claim 35, the Examiner indicated that Goringe includes all the elements of claim 35, except sending performance probes to the network devices associated with the identifiers to collect network performance information and a statistical computing device. The Examiner relied on Beigi for these features not included within Goringe. Applicant disagrees with the Examiner's characterization of Goringe and Beigi.

As described in detail with respect to Applicant's claim 1 above, Goringe fails to teach or suggest receiving routing communications, at least a portion of which include identifiers associated with network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network, as required by Applicant's claim 35. To the contrary, the routing communications in Goringe include routing information (e.g., link-state information, interface information and the like) and an identifier associated with the router that sent the communication. Thus, the OSPF routing communications received by the system in Goringe only include the identifier associated with the network device. None of the routing information included within the routing communication, e.g., the link-state information or interface information, functions as an indicator that indicates the network device is capable of responding to performance probes. Instead, the routing information included within the received routing communications of Goringe is nothing more than conventional routing information obtained via the routing protocol.

In fact, Goringe fails to teach or suggest using performance probes for collecting network performance statistics, as acknowledged by the Examiner in the Final Office Action, and therefore could not possibly contemplate (or have a reason to contemplate) identifying the particular network devices within the network that support the capability of responding to such

performance probes. Instead, Goringe identifies network devices within the network that execute the OSPF routing protocol to obtain a portion of the topology of the network.

Goringe also fails to teach or suggest *a statistical computing device that aggregates performance information from the network devices and computes collective network performance information*, as required by Applicant's claim 35. In support of the rejection of this feature of Applicant's claim 35, the Examiner characterized column 5, lines 9-64 of Goringe as disclosing such a feature. Applicant disagrees with the Examiner's characterization of the referenced portion of Goringe. The referenced section of Goringe describes the multi-phased network topology discovery process. The network topology of a network is not the same as performance information of the network, and this provides no teaching of *a statistical computing device that aggregates performance information from the network devices and computes collective network performance information.*

As described in Applicant's specification at page 2, paragraph [0005], the performance information may be used to measure the quality of network services provided to customers. Several examples were provided in Applicant's specification, such as the delay from the first network device to each of the other network devices, the delay from the other network devices to the first network device, the roundtrip delay, average delays (both ways and roundtrip), maximum delays, minimum delays, jitter, throughput, and packet loss. Discovering a network topology of a network does not provide any sort of performance information that measures quality of the network services provided to the customer. Instead, the network topology provides a "mapping" of routers and other network devices in the network.

Beigi also fails to teach or suggest a statistical computing device that aggregates performance information from the network devices and computes collective network performance information, as required by Applicant's claim 35. Beigi describes the network device that receives the probe packet computing delay statistics and storing the delay statistics in a statistics database. Beigi uses the computed delay statistics to determine whether to perform a heavy weight performance monitoring process that sends performance probes. However, Beigi fails to teach or suggest a statistical computing device that aggregates performance information from the network devices and computes ***collective*** network performance information, as required by Applicant's claim 35. In other words, Applicant's claim 35 requires a separate device that aggregates performance information collected by other network devices to generate performance

information for the network as a collective whole. To the contrary, the Beigi reference describes the network device collecting performance information for the single network device that receives the performance probes.

Claim 32 and 41-45

Applicant argues claims 32 and 41-45 as a group. Applicant directs the Examiner to independent claim 41 as the claim representative of the group.

Applicant's claim 41 is directed to a network device that includes a routing communication manager that receives routing communications in accordance with a routing protocol. Claim 41 requires that at least a portion of the routing communications include identifiers associated with the network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network.

Applicant's claim 41 additionally recites a performance monitoring service card that manages performance sessions with the network devices associated with the identifiers by sending performance probes to the network devices to collect network performance statistics. In other words, Applicant's claim 41 requires a dedicated service card that performs the performance monitoring functions. A similar feature is required in dependent claim 32.

In the rejection of claim 41, the Examiner indicated that Goringe includes all the elements of claim 41, except sending performance probes to the network devices associated with the identifiers to collect network performance information. For this feature, the Examiner relied again on Beigi. Applicant disagrees with the Examiner's characterization of Goringe and Beigi.

As described in detail with respect to Applicant's claim 1 above, Goringe fails to teach or suggest receiving routing communications, at least a portion of which include identifiers associated with network devices that sent the routing communications and indicators that indicate that the network device associated with the indicators are capable of responding to performance probes used to monitor performance of a network, as required by Applicant's claim 41. To the contrary, the routing communications in Goringe include routing information (e.g., link-state information, interface information and the like) and an identifier associated with the router that sent the communication. Thus, the routing communications received by the system in Goringe only include the identifier associated with the network device. None of the routing

information included within the routing communication, e.g., the link-state information or interface information, functions as an indicator that indicates the network device is capable of responding to performance probes. Instead, the routing information included within the received routing communications of Goringe is nothing more than conventional routing information obtained via the routing protocol.

In fact, Goringe fails to teach or suggest using performance probes for collecting network performance statistics, as acknowledged by the Examiner in the Final Office Action, and therefore could not possibly contemplate (or have a reason to contemplate) identifying the particular network devices within the network that support the capability of responding to such performance probes. Instead, Goringe identifies network devices within the network that execute the OSPF routing protocol to obtain a portion of the topology of the network.

Goringe also fails to teach or suggest a performance monitoring service card that manages performance sessions with the network devices, as required by Applicant's claim 41. In support of the rejection of this feature of Applicant's claim 41, the Examiner characterized column 5, line 9 – column 6, line 31 of Goringe as disclosing such a feature. Applicant disagrees with the Examiner's characterization of the referenced portion of Goringe. The referenced section of Goringe describes the multi-phased network topology discovery process. The SNMP discovery agent than manages the SNMP discovery phase is not the same as a performance service card that manages performance sessions.

First, as described in detail above, the discovery phases of the Goringe network topology discovery techniques are not performance sessions. In fact, Goringe fails to teach or suggest conducting any sort of performance sessions. Second, the SNMP and/or OSPF discovery agents are software processes executed on a processor of the network device. Goringe does not describe the processor that executes these software processes as residing on a dedicated service card. In fact, there is no mention in Goringe of any sort of card for a network device.

Beigi also fails to teach or suggest a performance monitoring service card that manages performance sessions with the network devices, as required by Applicant's claim 41. In support of the rejection of claim 32, which includes similar limitations to claim 41, the Examiner characterized element 907, 911 and 913 as the separate service card. Beigi does not describe these elements as being implemented within a separate service card. In fact, like Goringe, Beigi fails to provide any mention of a service card for a network device.

Claim 52

Applicant argues claim 52 separately. Claim 52, which includes all the limitations of claim 1, further requires that the routing communication include a uniquely defined routing protocol attribute that indicates the network device that sent the routing communication is capable of responding to performance probes. In other words, claim 52 literally requires that there be a routing protocol attribute that specifically indicates the network device that sent the routing communication is capable of responding to performance probes.

In support of the rejection of claim 52, the Examiner again indicated that because the routing communications include routing information along with unique identifiers associated with the router that the routing communications indirectly indicate their monitoring capability. As described above with respect to claim 1, the routing communication received in Goringe does not indicate, either directly or indirectly, the capability of responding to performance probes. However, even if the routing communication is viewed as indirectly indicating monitoring capability (which for the reasons set forth above Goringe does not teach), Applicant's claim 52 requires that there be a specific routing protocol attribute that directly indicates the network device that sent the routing communication is capable of responding to performance probes. Goringe fails to teach or suggest such a routing protocol attribute. Beigi fails to overcome the deficiencies of Goringe.

Claim 53

In the Office Action, the Examiner rejected claims 53 under 35 U.S.C. 103(a) as being unpatentable over the already combined teachings of Goringe, Beigi and Dowling as applied in claim 1 above and further in view of Martin (U.S. Patent Number 6,744,739).

Applicant argues claim 53 separately. Claim 53, which includes all the limitations of claims 1 and 52, further requires the routing protocol to include a uniquely defined BGP community attribute that indicates the network device that sent the routing communication is capable of responding to performance probes. In other words, claim 53 literally requires that there be a BGP community attribute that specifically indicates the network device that sent the routing communication is capable of responding to performance probes.

As described above with respect to claim 52, the routing communication received in Goringe does not indicate, either directly or indirectly, the capability of responding to

performance probes. However, even if the routing communication is viewed as indirectly indicating monitoring capability (which for the reasons set forth above Goringe does not teach), Applicant's claim 52 requires that there be a specific BGP community attribute that directly indicates the network device that sent the routing communication is capable of responding to performance probes. Goringe, Beigi and Martin all fail to teach or suggest such a BGP community attribute. In fact, none of the references makes any reference to a BGP community attribute at all.

For at least these reasons, the Office Action has failed to establish a prima facie case for non-patentability of Applicant's claims under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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February 4, 2009

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